

REMARKS

By the present amendment, claims 1 and 5-7 have been amended to further clarify the concepts of the present invention. Among other things, independent claim 1 has been amended to incorporate the subject matter of dependent claims 2-3 therein. Consequently, dependent claims 2 and 3 along with claim 4 have been canceled. Support for the recitation that the paper sheet has the recited thickness as now recited in claim 1 may be found on page 9, lines 22 to 24 of the specification. Support for the conductive material as recited in claim 1 may be found on the second paragraph of page 12 of the specification. Entry of these amendments is respectfully requested.

In the Office Action, claims 1-3 and 8-9 were rejected under 35 USC § 103(a) as being unpatentable over the patent to Majumdar et al in view of the patent publications to Aylward et al, Asaka et al, and Shikano et al. In making this rejection, it was asserted that the patent to Majumdar et al, in conjunction with the patent to Aylward et al which is cited therein, teach an electrophotographic imaging material comprising a coated paper substrate with an image receiving layer. It was acknowledged that these patents do not teach the claimed composition of the image receiving layer nor the claimed stiffness. It then was asserted that Asaka et al teaches the composition by disclosing particles of antimony-doped tin oxide, and the Shikano et al discloses imaging material having the stiffness as claimed. It was concluded that it would be obvious to combine the teachings

of the cited publications to produce the electrophotographic transfer sheet as claimed. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

Before discussing the rejection in detail, a brief review of the presently claimed invention may be quite instructive. The invention as presently claimed is directed to an electrophotographic transfer sheet which includes, among other things, a core sheet to be composed of a paper sheet having a thickness of between 50 and 200 μ m; a thermoplastic resin film layer (A) laminated on both sides of the core material layer (B); and a toner receiving layer mainly composed of a conductive material comprising a titanium dioxide as its base material coated with a conductive metal oxide made semiconductive by being doped with antimony as an impurity.

The electrophotographic transfer sheet having the features specified in amended claim 1, and, more particularly, which includes the specified conductive material in the toner receiving layer, in combination with the specified stiffness, exhibits remarkable advantages. These advantages include having a stable surface electrical resistance values in a wide range of environments from low temperature, low humidity to high temperature, and high humidity, having an excellent toner transfer properties, high image density, and high quality images, avoiding paper jamming during ejection due to heat curling, and preventing fusion of the transfer sheets or paper breaks at the fixing heat

roller, all while preventing water-immersed paper tears or distortion and toner peeling. These remarkable features and advantages are supported and illustrated by Examples 1 to 4 of the subject specification. It is submitted that independent claim 1 as amended as well as claims 8 and 9 depending thereon are not taught or suggested by the cited patents to the Majumdar et al, Aylward et al, Asaka et al, and Shikano et al, whether taken singly or in combination.

More particularly, it is submitted that none of the Majumdar et al, Aylward et al, Asaka et al, or Shikano et al patents teach or suggest the use of, among other things, a toner receiving layer mainly composed of a conductive material comprising a titanium dioxide as its base material coated with a conductive metal oxide made semiconductive by being doped with antimony as an impurity as specified in amended claim 1. The Majumdar et al patent discloses at column 9, 3rd paragraph a paper substrate such as a natural or synthetic paper, resin-coated or laminated paper, voided polymer material including microvoided polymer material, and illustrates electrophotographic as a preferred application of the paper substrate at column 11, 6th paragraph. However, the Majumdar et al patent contains no teaching with respect to a toner receiving layer comprised of "a conductive material comprising a titanium dioxide as its base material coated with a conductive metal oxide made semiconductive by being doped with antimony as an impurity" as presently claimed. Further, the patent does not teach a total stiffness of an electrophotographic sheet as claimed.

It is submitted that these teaching deficiencies of the Majumdar et al patent are not provided by the remaining cited patents. In particular, the Aylward et al patent merely discloses a display paper comprising a paper base on which a biaxially oriented polyolefin sheet optionally containing titanium dioxide is laminated. Among other things, the patent does not include and teaching regarding an electrophotographic sheet having a toner receiving layer.

The Asaka et al patent discloses an electrophotographic transfer film comprising a transparent substrate having a image (toner) receiving layer containing conductive metal oxide fine particles and having a surface resistivity of from 1×10^9 to $1 \times 10^{13} \Omega$ at 25°C. The substrate of the Asaka et al patent is transparent, and thus differs from the paper sheet of the presently claimed invention. In addition, the Asaka et al patent contains no teaching with respect to a toner receiving layer comprised of "a conductive material comprising a titanium dioxide as its base material coated with a conductive metal oxide made semiconductive by being doped with antimony as an impurity," as well as the total stiffness of an electrophotographic sheet.

The Shikano et al patent discloses an electrophotographic recording sheet comprising a thermoplastic resin sheet having a Clark stiffness of from 15 to 500. The Shikano et al patent is silent with respect to the use of a laminate comprising a paper sheet and a thermoplastic resin film as claimed. Furthermore, the Shikano et al patent does not

teach or suggest a toner receiving layer comprised of "a conductive material comprising a titanium dioxide as its base material coated with a conductive metal oxide made semiconductive by being doped with antimony as an impurity" as claimed.

Accordingly, it is submitted that none of the Majumdar et al, Aylward et al, Asaka et al, or Shikano et al patents teach or suggest, among other things, the use of a conductive material specified in amended claim 1 in a toner receiving layer. The subject electrophotographic transfer sheet incorporates the conductive material in the toner receiving layer, and, as demonstrated in Examples 1 to 4 of the present specification, the surface electrical resistance values, in a wide range of environments from low temperature, low humidity to high temperature, and high humidity, the toner transfer properties, the image density, and the quality images of the electrophotographic sheet, are remarkably improved. Since these patents are totally silent with respect to the use of the subject conductive material in the toner receiving layer, it is submitted that the subject matter of amended claim 1 as well as claims 8 and 9 are patentably distinct from the teachings of the patents.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claims 1 and 8-9 as amended over the cited patents are respectfully requested.

Claims 4-7 were rejected under 35 USC § 103(a) as being unpatentable over the patent to Majumdar et al in view of the patent publications to Aylward et al, Asaka et al, and Shikano et al further in view of the patent to Sakamoto et al. In making this rejection, the patent publications to Majumdar et al, Aylward et al, Asaka et al, and Shikano et al were applied as in the above rejection. It was then asserted that the Sakamoto et al patent teaches the use of conductive acicular titanium dioxide particles of the size claimed which are coated with antimony-doped tin oxide. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

The above remarks relative to the teaching deficiencies of the Majumdar et al, Aylward et al, Asaka et al, and Shikano et al patents are reiterated with regard to this rejection. It is submitted that the Sakamoto et al does not supply these teaching deficiencies. The Sakamoto et al patent discloses conductive acicular titanium dioxide particles coated with antimony-doped tin oxide as conductive particles for electrophotographic copying paper. However, the Sakamoto et al patent does not teach or suggest an electrophotographic sheet comprising a toner receiving layer. Accordingly, the Sakamoto et al patent does not contain any teaching which would motivate a person skilled in the art to incorporate the conductive material into a toner receiving layer. Further, due to the absence of such a teaching, it is submitted that a person skilled in the art cannot predict the remarkable effects of incorporating the conductive material into the toner receiving layer from the disclosure of the Sakamoto et al patent.

Serial Number: 10/763,170
OA dated 5/5/05
Amdt. dated 9/6/05


For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claims 5 through 7 as amended over the cited patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP



Donald W. Hanson
Attorney for Applicants
Reg. No. 27,133

Atty. Docket No. 040019
Suite 1000, 1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930
DWH/rab



23850

PATENT TRADEMARK OFFICE